Monitor Lift and Paint Cap Remover

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Weekly Progress Report
11/9-11/16

Work Completed
The Monitor Lift

This week we worked on the circuitry of the monitor lift. We ordered a 9V power adapter since we found that our original adapter couldn’t handle enough current. Our first adapter which was 7V could only take a max current of 2.1 A. Our device (the linear actuator) only drew around 1.75 A but we wanted to be extra safe. In case of a heavy load or a power surge, we wanted more clearance in current to prevent the possibility of the power adapter heating up. The new adapter could handle 4 Amps and this was way more than the circuit would ever draw. We cut off the end of the adapter as shown in the above picture so that we could attach it to the switch in the circuit. Unlike a general cord with a positive and negative internal wire, there is one mesh wire which is one polarity and a second internal wire with the opposite polarity. To separate these wires so that they could be used in our circuit it was necessary to first expose the mesh wire that surrounded the inside wire. After it was exposed, the mesh wire could be peeled to the side and wound so that it was its own cord. This left the internal cord to be stripped and exposed, yielding two separate wires. These were attached to the Double Pole Double Throw switch shown in the figure on the left. The switch allows the user to change the direction of the polarity up or down.
Paint Cap Remover

We also made progress on the paint cap remover. For some finishing touches we decided it was necessary to put a screw through the aluminum encasement into the back plate. Originally we thought this step unnecessary, but as the user presses the depression switch, the encasement sort of bends backwards. To prevent this we decided to install a #10-32 screw in the side of the plate. This would support the force of someone pressing the button. It also makes the device tamper proof, so that no one could bend back the encasement and stick their fingers inside. We used a size 21 drill bit at 800 rpm to drill into the ½ inch aluminum back plate. We countersinked the hole and then tapped it using the #10-32 hand tap. The hole is 1.6 inches from the base.

I also used a hand orbital sander to clean up the surface of the paint cap remover. The orbital sander is a hand operated oscillating device which can by hand make the metal look new and shiny again. By slowly sanding off the very top layer of the metal I was able to make the device look more professional.
This is the final look of our paint cap remover project. The device is clean and professional looking. It is made with mostly aluminum parts and will not rust nor corrode. I am very happy with how both projects turned out.

**Project Overview**

Both projects are in fully working condition. We are now only in need of some final touches, things to make the projects look prettier or things which improve the aesthetics. The projects themselves are working great and I am impressed with the work everyone has put into these devices to get them fully operational.

**Future Work**

- Work on the project aesthetics
- Make final touches to the projects
- Test the projects in different situations

**Total Work Hours: 13**